It is therefore intended by the appended claims to cover any and all such applications, modifications and embodiments within the scope of the present invention.

Accordingly, what is claimed is:

1. An interactive automatic system for measuring and analyzing mental ability including:

first means for automatically providing a stimulus for a duration of time;

second means for automatically measuring a subject's reaction to said stimulus and providing data in response thereto, said second means including means for measuring said subject's physical reaction time;

third means responsive to said second means for adjusting the duration of time during which the stimulus is provided by the first means in response to said data; and

fourth means responsive to said means for measuring said subject's physical reaction time for measuring the subject's threshold of perceptual discrimination.

2. The invention of claim **1** including means for measuring the subject's perceptual awareness thresholds.

3. The invention of claim **1** including means for measuring the subject's brain processing speed and efficiency.

4. The invention of claim **1** including means for measuring the subject's cognitive capacity (speed, efficiency and capacity) for information processing.

5. The invention of claim **1** including means for measuring the subject's cognitive capacity (speed, efficiency and capacity) for choice, descrimination and decision responses.

6. The invention of claim **1** including means for measuring the subject's cognitive capacity (speed, efficiency and capacity) of accessing various areas of short and long term memory.

7. The invention of claim **1** including means for interactive adjustment of test complexity based on said measurements.

8. The invention of claim **1** including means for quantifying the information exchange rate between the subject's left and right brain hemispheres.

9. The invention of claim **1** including means for non-invasive identification and quantification of neural noise in the brain and elementary cognitive processing pathways.

10. The invention of claim **1** including means for measuring the subject's level of attention.

11. The invention of claim **1** including means for compiling a history of the data, providing specific comments in response to said data, and granting a level's rating for the subject's overall mental and physical performance.

12. An interactive automatic method for measuring and analyzing mental ability including the steps of:

automatically presenting an auditory or visual stimulus for a period of time,

automatically measuring a physical reaction to said stimulus, and

adjusting the period of time during which the stimulus is presented in response to the measured physical reaction time to ascertain a subject's threshold of perceptual discrimination.

13. The invention of claim **12** including the step of measuring perceptual awareness thresholds.

14. The invention of claim **12** including the step of measuring the subject's brain processing speed and efficiency.

15. The invention of claim **12** including the step of measuring the subject's cognitive capacity (speed, efficiency and capacity) for information processing.

16. The invention of claim **12** including the step of measuring the subject's cognitive capacity (speed, efficiency and capacity) for rendering choice discrimination and decision responses.

17. The invention of claim **12** including the step of measuring the subject's cognitive capacity for accessing various areas of short and long term memory.

18. The invention of claim **12** including the step of interactive adjustment of test complexity based on said measurements.

19. The invention of claim **12** including the step of quantifying the information exchange rate between the subject's left and right brain hemispheres.

20. The invention of claim **12** including the step of non invasive identification and quantification of neural noise in the brain and elementary cognitive processing pathways.

21. The invention of claim **12** including the step of measuring the subject's level of attention.

22. The invention of claim **12** including the steps of repeating the steps of claim **13** to compile a history of scores, provide specific comments in response to said scores, and grant a level's rating for the subject's overall mental and physical performance.

23. An interactive automatic system for measuring and analyzing mental ability including:

first means for automatically providing a primary stimulus;

second means for randomly providing a second, rule-altering stimulus simultaneously with the primary stimulus;

third means for automatically measuring a subject's reaction to said stimuli and providing data in response thereto;

fourth means responsive to said third means for outputting said data.

24. An interactive automatic system for measuring and analyzing mental ability via a battery of cognitive tasks including:

first means for automatically providing a diversity of stimulus elements for a duration of time including random audio and visual content including lights, sounds, letters, words, pictures and/or symbols;

second means for automatically measuring a subject's reaction to said stimuli and providing data in response thereto;

third means for adjusting the stimuli of first means in response to said data; and

fourth means for outputting said data.

25. An interactive automatic system for measuring and analyzing mental ability including:

first means for automatically providing a stimulus for a duration of time;

second means for automatically measuring a subject's reaction to said stimulus and providing data in response thereto, said second means including means for measuring said subject's reaction time; and

third means responsive to said second means for adjusting the duration of time during which the stimulus is provided by the first means in response to said data until the duration of stimuli presentation is substantially equal to the subject's threshold of perceptual discrimination.

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